



wwPDB X-ray Structure Validation Summary Report ⓘ

Feb 1, 2016 – 08:39 AM GMT

PDB ID : 3FBV
Title : Crystal structure of the oligomer formed by the kinase-ribonuclease domain of Ire1
Authors : Korennykh, A.V.; Egea, P.F.; Korostelev, A.A.; Finer-Moore, J.; Zhang, C.; Shokat, K.M.; Stroud, R.M.; Walter, P.
Deposited on : 2008-11-19
Resolution : 3.20 Å(reported)

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.
We welcome your comments at validation@mail.wwpdb.org
A user guide is available at
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20026688
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac : 5.8.0135
CCP4 : 6.5.0
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk26865

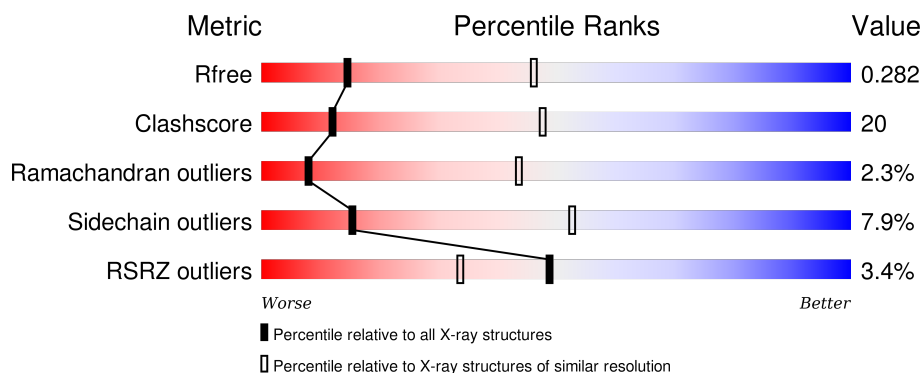
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.20 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	91344	1124 (3.24-3.16)
Clashscore	102246	1024 (3.22-3.18)
Ramachandran outliers	100387	1004 (3.22-3.18)
Sidechain outliers	100360	1003 (3.22-3.18)
RSRZ outliers	91569	1129 (3.24-3.16)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	448	<div> <div>2%</div> <div>56%</div> <div>32%</div> <div>7%</div> </div>
1	B	448	<div> <div>58%</div> <div>30%</div> <div>5%</div> <div>7%</div> </div>
1	C	448	<div> <div>54%</div> <div>34%</div> <div>5%</div> <div>7%</div> </div>
1	D	448	<div> <div>55%</div> <div>33%</div> <div>6%</div> <div>5%</div> </div>
1	E	448	<div> <div>2%</div> <div>57%</div> <div>31%</div> <div>5%</div> <div>7%</div> </div>

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Mol	Chain	Length	Quality of chain
1	F	448	
1	G	448	
1	H	448	
1	I	448	
1	J	448	
1	K	448	
1	L	448	
1	M	448	
1	N	448	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	APJ	H	1999	-	-	-	X
2	APJ	J	1999	-	-	-	X
2	APJ	K	1999	-	-	-	X

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 48018 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Serine/threonine-protein kinase/endoribonuclease IRE1.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	418	Total	C	N	O	P	S	0	0	0
			3399	2162	580	636	3	18			
1	B	418	Total	C	N	O	P	S	0	0	0
			3399	2162	580	636	3	18			
1	C	418	Total	C	N	O	P	S	0	0	0
			3399	2162	580	636	3	18			
1	D	425	Total	C	N	O	P	S	0	0	0
			3457	2199	589	648	3	18			
1	E	418	Total	C	N	O	P	S	0	0	0
			3399	2162	580	636	3	18			
1	F	418	Total	C	N	O	P	S	0	0	0
			3399	2162	580	636	3	18			
1	G	418	Total	C	N	O	P	S	0	0	0
			3399	2162	580	636	3	18			
1	H	418	Total	C	N	O	P	S	0	0	0
			3399	2162	580	636	3	18			
1	I	416	Total	C	N	O	P	S	0	0	0
			3382	2150	577	634	3	18			
1	J	416	Total	C	N	O	P	S	0	0	0
			3382	2150	577	634	3	18			
1	K	425	Total	C	N	O	P	S	0	0	0
			3457	2199	589	648	3	18			
1	L	418	Total	C	N	O	P	S	0	0	0
			3399	2162	580	636	3	18			
1	M	418	Total	C	N	O	P	S	0	0	0
			3399	2162	580	636	3	18			
1	N	418	Total	C	N	O	P	S	0	0	0
			3399	2162	580	636	3	18			

There are 406 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	640	PRO	-	EXPRESSION TAG	UNP P32361

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Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	ASN	DELETION	UNP P32361
A	?	-	ASN	DELETION	UNP P32361
A	?	-	LEU	DELETION	UNP P32361
A	?	-	GLN	DELETION	UNP P32361
A	?	-	CYS	DELETION	UNP P32361
A	?	-	GLN	DELETION	UNP P32361
A	?	-	VAL	DELETION	UNP P32361
A	?	-	GLU	DELETION	UNP P32361
A	?	-	THR	DELETION	UNP P32361
A	?	-	GLU	DELETION	UNP P32361
A	?	-	HIS	DELETION	UNP P32361
A	?	-	SER	DELETION	UNP P32361
A	?	-	SER	DELETION	UNP P32361
A	?	-	SER	DELETION	UNP P32361
A	?	-	ARG	DELETION	UNP P32361
A	?	-	HIS	DELETION	UNP P32361
A	?	-	THR	DELETION	UNP P32361
A	?	-	VAL	DELETION	UNP P32361
A	?	-	VAL	DELETION	UNP P32361
A	?	-	SER	DELETION	UNP P32361
A	?	-	SER	DELETION	UNP P32361
A	?	-	ASP	DELETION	UNP P32361
A	?	-	SER	DELETION	UNP P32361
A	?	-	PHE	DELETION	UNP P32361
A	?	-	TYR	DELETION	UNP P32361
A	?	-	ASP	DELETION	UNP P32361
A	?	-	PRO	DELETION	UNP P32361
A	?	-	PHE	DELETION	UNP P32361
B	640	PRO	-	EXPRESSION TAG	UNP P32361
B	?	-	ASN	DELETION	UNP P32361
B	?	-	ASN	DELETION	UNP P32361
B	?	-	LEU	DELETION	UNP P32361
B	?	-	GLN	DELETION	UNP P32361
B	?	-	CYS	DELETION	UNP P32361
B	?	-	GLN	DELETION	UNP P32361
B	?	-	VAL	DELETION	UNP P32361
B	?	-	GLU	DELETION	UNP P32361
B	?	-	THR	DELETION	UNP P32361
B	?	-	GLU	DELETION	UNP P32361
B	?	-	HIS	DELETION	UNP P32361
B	?	-	SER	DELETION	UNP P32361
B	?	-	SER	DELETION	UNP P32361

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Chain	Residue	Modelled	Actual	Comment	Reference
B	?	-	SER	DELETION	UNP P32361
B	?	-	ARG	DELETION	UNP P32361
B	?	-	HIS	DELETION	UNP P32361
B	?	-	THR	DELETION	UNP P32361
B	?	-	VAL	DELETION	UNP P32361
B	?	-	VAL	DELETION	UNP P32361
B	?	-	SER	DELETION	UNP P32361
B	?	-	SER	DELETION	UNP P32361
B	?	-	ASP	DELETION	UNP P32361
B	?	-	SER	DELETION	UNP P32361
B	?	-	PHE	DELETION	UNP P32361
B	?	-	TYR	DELETION	UNP P32361
B	?	-	ASP	DELETION	UNP P32361
B	?	-	PRO	DELETION	UNP P32361
B	?	-	PHE	DELETION	UNP P32361
C	640	PRO	-	EXPRESSION TAG	UNP P32361
C	?	-	ASN	DELETION	UNP P32361
C	?	-	ASN	DELETION	UNP P32361
C	?	-	LEU	DELETION	UNP P32361
C	?	-	GLN	DELETION	UNP P32361
C	?	-	CYS	DELETION	UNP P32361
C	?	-	GLN	DELETION	UNP P32361
C	?	-	VAL	DELETION	UNP P32361
C	?	-	GLU	DELETION	UNP P32361
C	?	-	THR	DELETION	UNP P32361
C	?	-	GLU	DELETION	UNP P32361
C	?	-	HIS	DELETION	UNP P32361
C	?	-	SER	DELETION	UNP P32361
C	?	-	SER	DELETION	UNP P32361
C	?	-	SER	DELETION	UNP P32361
C	?	-	ARG	DELETION	UNP P32361
C	?	-	HIS	DELETION	UNP P32361
C	?	-	THR	DELETION	UNP P32361
C	?	-	VAL	DELETION	UNP P32361
C	?	-	VAL	DELETION	UNP P32361
C	?	-	SER	DELETION	UNP P32361
C	?	-	SER	DELETION	UNP P32361
C	?	-	ASP	DELETION	UNP P32361
C	?	-	SER	DELETION	UNP P32361
C	?	-	PHE	DELETION	UNP P32361
C	?	-	TYR	DELETION	UNP P32361
C	?	-	ASP	DELETION	UNP P32361

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Chain	Residue	Modelled	Actual	Comment	Reference
C	?	-	PRO	DELETION	UNP P32361
C	?	-	PHE	DELETION	UNP P32361
D	640	PRO	-	EXPRESSION TAG	UNP P32361
D	?	-	ASN	DELETION	UNP P32361
D	?	-	ASN	DELETION	UNP P32361
D	?	-	LEU	DELETION	UNP P32361
D	?	-	GLN	DELETION	UNP P32361
D	?	-	CYS	DELETION	UNP P32361
D	?	-	GLN	DELETION	UNP P32361
D	?	-	VAL	DELETION	UNP P32361
D	?	-	GLU	DELETION	UNP P32361
D	?	-	THR	DELETION	UNP P32361
D	?	-	GLU	DELETION	UNP P32361
D	?	-	HIS	DELETION	UNP P32361
D	?	-	SER	DELETION	UNP P32361
D	?	-	SER	DELETION	UNP P32361
D	?	-	SER	DELETION	UNP P32361
D	?	-	ARG	DELETION	UNP P32361
D	?	-	HIS	DELETION	UNP P32361
D	?	-	THR	DELETION	UNP P32361
D	?	-	VAL	DELETION	UNP P32361
D	?	-	VAL	DELETION	UNP P32361
D	?	-	SER	DELETION	UNP P32361
D	?	-	SER	DELETION	UNP P32361
D	?	-	ASP	DELETION	UNP P32361
D	?	-	SER	DELETION	UNP P32361
D	?	-	PHE	DELETION	UNP P32361
D	?	-	TYR	DELETION	UNP P32361
D	?	-	ASP	DELETION	UNP P32361
D	?	-	PRO	DELETION	UNP P32361
D	?	-	PHE	DELETION	UNP P32361
E	640	PRO	-	EXPRESSION TAG	UNP P32361
E	?	-	ASN	DELETION	UNP P32361
E	?	-	ASN	DELETION	UNP P32361
E	?	-	LEU	DELETION	UNP P32361
E	?	-	GLN	DELETION	UNP P32361
E	?	-	CYS	DELETION	UNP P32361
E	?	-	GLN	DELETION	UNP P32361
E	?	-	VAL	DELETION	UNP P32361
E	?	-	GLU	DELETION	UNP P32361
E	?	-	THR	DELETION	UNP P32361
E	?	-	GLU	DELETION	UNP P32361

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Chain	Residue	Modelled	Actual	Comment	Reference
E	?	-	HIS	DELETION	UNP P32361
E	?	-	SER	DELETION	UNP P32361
E	?	-	SER	DELETION	UNP P32361
E	?	-	SER	DELETION	UNP P32361
E	?	-	ARG	DELETION	UNP P32361
E	?	-	HIS	DELETION	UNP P32361
E	?	-	THR	DELETION	UNP P32361
E	?	-	VAL	DELETION	UNP P32361
E	?	-	VAL	DELETION	UNP P32361
E	?	-	SER	DELETION	UNP P32361
E	?	-	SER	DELETION	UNP P32361
E	?	-	ASP	DELETION	UNP P32361
E	?	-	SER	DELETION	UNP P32361
E	?	-	PHE	DELETION	UNP P32361
E	?	-	TYR	DELETION	UNP P32361
E	?	-	ASP	DELETION	UNP P32361
E	?	-	PRO	DELETION	UNP P32361
E	?	-	PHE	DELETION	UNP P32361
F	640	PRO	-	EXPRESSION TAG	UNP P32361
F	?	-	ASN	DELETION	UNP P32361
F	?	-	ASN	DELETION	UNP P32361
F	?	-	LEU	DELETION	UNP P32361
F	?	-	GLN	DELETION	UNP P32361
F	?	-	CYS	DELETION	UNP P32361
F	?	-	GLN	DELETION	UNP P32361
F	?	-	VAL	DELETION	UNP P32361
F	?	-	GLU	DELETION	UNP P32361
F	?	-	THR	DELETION	UNP P32361
F	?	-	GLU	DELETION	UNP P32361
F	?	-	HIS	DELETION	UNP P32361
F	?	-	SER	DELETION	UNP P32361
F	?	-	SER	DELETION	UNP P32361
F	?	-	SER	DELETION	UNP P32361
F	?	-	ARG	DELETION	UNP P32361
F	?	-	HIS	DELETION	UNP P32361
F	?	-	THR	DELETION	UNP P32361
F	?	-	VAL	DELETION	UNP P32361
F	?	-	VAL	DELETION	UNP P32361
F	?	-	SER	DELETION	UNP P32361
F	?	-	SER	DELETION	UNP P32361
F	?	-	ASP	DELETION	UNP P32361
F	?	-	SER	DELETION	UNP P32361

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Chain	Residue	Modelled	Actual	Comment	Reference
F	?	-	PHE	DELETION	UNP P32361
F	?	-	TYR	DELETION	UNP P32361
F	?	-	ASP	DELETION	UNP P32361
F	?	-	PRO	DELETION	UNP P32361
F	?	-	PHE	DELETION	UNP P32361
G	640	PRO	-	EXPRESSION TAG	UNP P32361
G	?	-	ASN	DELETION	UNP P32361
G	?	-	ASN	DELETION	UNP P32361
G	?	-	LEU	DELETION	UNP P32361
G	?	-	GLN	DELETION	UNP P32361
G	?	-	CYS	DELETION	UNP P32361
G	?	-	GLN	DELETION	UNP P32361
G	?	-	VAL	DELETION	UNP P32361
G	?	-	GLU	DELETION	UNP P32361
G	?	-	THR	DELETION	UNP P32361
G	?	-	GLU	DELETION	UNP P32361
G	?	-	HIS	DELETION	UNP P32361
G	?	-	SER	DELETION	UNP P32361
G	?	-	SER	DELETION	UNP P32361
G	?	-	SER	DELETION	UNP P32361
G	?	-	ARG	DELETION	UNP P32361
G	?	-	HIS	DELETION	UNP P32361
G	?	-	THR	DELETION	UNP P32361
G	?	-	VAL	DELETION	UNP P32361
G	?	-	VAL	DELETION	UNP P32361
G	?	-	SER	DELETION	UNP P32361
G	?	-	SER	DELETION	UNP P32361
G	?	-	ASP	DELETION	UNP P32361
G	?	-	SER	DELETION	UNP P32361
G	?	-	PHE	DELETION	UNP P32361
G	?	-	TYR	DELETION	UNP P32361
G	?	-	ASP	DELETION	UNP P32361
G	?	-	PRO	DELETION	UNP P32361
G	?	-	PHE	DELETION	UNP P32361
H	640	PRO	-	EXPRESSION TAG	UNP P32361
H	?	-	ASN	DELETION	UNP P32361
H	?	-	ASN	DELETION	UNP P32361
H	?	-	LEU	DELETION	UNP P32361
H	?	-	GLN	DELETION	UNP P32361
H	?	-	CYS	DELETION	UNP P32361
H	?	-	GLN	DELETION	UNP P32361
H	?	-	VAL	DELETION	UNP P32361

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Chain	Residue	Modelled	Actual	Comment	Reference
H	?	-	GLU	DELETION	UNP P32361
H	?	-	THR	DELETION	UNP P32361
H	?	-	GLU	DELETION	UNP P32361
H	?	-	HIS	DELETION	UNP P32361
H	?	-	SER	DELETION	UNP P32361
H	?	-	SER	DELETION	UNP P32361
H	?	-	SER	DELETION	UNP P32361
H	?	-	ARG	DELETION	UNP P32361
H	?	-	HIS	DELETION	UNP P32361
H	?	-	THR	DELETION	UNP P32361
H	?	-	VAL	DELETION	UNP P32361
H	?	-	VAL	DELETION	UNP P32361
H	?	-	SER	DELETION	UNP P32361
H	?	-	SER	DELETION	UNP P32361
H	?	-	ASP	DELETION	UNP P32361
H	?	-	SER	DELETION	UNP P32361
H	?	-	PHE	DELETION	UNP P32361
H	?	-	TYR	DELETION	UNP P32361
H	?	-	ASP	DELETION	UNP P32361
H	?	-	PRO	DELETION	UNP P32361
H	?	-	PHE	DELETION	UNP P32361
I	640	PRO	-	EXPRESSION TAG	UNP P32361
I	?	-	ASN	DELETION	UNP P32361
I	?	-	ASN	DELETION	UNP P32361
I	?	-	LEU	DELETION	UNP P32361
I	?	-	GLN	DELETION	UNP P32361
I	?	-	CYS	DELETION	UNP P32361
I	?	-	GLN	DELETION	UNP P32361
I	?	-	VAL	DELETION	UNP P32361
I	?	-	GLU	DELETION	UNP P32361
I	?	-	THR	DELETION	UNP P32361
I	?	-	GLU	DELETION	UNP P32361
I	?	-	HIS	DELETION	UNP P32361
I	?	-	SER	DELETION	UNP P32361
I	?	-	SER	DELETION	UNP P32361
I	?	-	SER	DELETION	UNP P32361
I	?	-	ARG	DELETION	UNP P32361
I	?	-	HIS	DELETION	UNP P32361
I	?	-	THR	DELETION	UNP P32361
I	?	-	VAL	DELETION	UNP P32361
I	?	-	VAL	DELETION	UNP P32361
I	?	-	SER	DELETION	UNP P32361

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Chain	Residue	Modelled	Actual	Comment	Reference
I	?	-	SER	DELETION	UNP P32361
I	?	-	ASP	DELETION	UNP P32361
I	?	-	SER	DELETION	UNP P32361
I	?	-	PHE	DELETION	UNP P32361
I	?	-	TYR	DELETION	UNP P32361
I	?	-	ASP	DELETION	UNP P32361
I	?	-	PRO	DELETION	UNP P32361
I	?	-	PHE	DELETION	UNP P32361
J	640	PRO	-	EXPRESSION TAG	UNP P32361
J	?	-	ASN	DELETION	UNP P32361
J	?	-	ASN	DELETION	UNP P32361
J	?	-	LEU	DELETION	UNP P32361
J	?	-	GLN	DELETION	UNP P32361
J	?	-	CYS	DELETION	UNP P32361
J	?	-	GLN	DELETION	UNP P32361
J	?	-	VAL	DELETION	UNP P32361
J	?	-	GLU	DELETION	UNP P32361
J	?	-	THR	DELETION	UNP P32361
J	?	-	GLU	DELETION	UNP P32361
J	?	-	HIS	DELETION	UNP P32361
J	?	-	SER	DELETION	UNP P32361
J	?	-	SER	DELETION	UNP P32361
J	?	-	SER	DELETION	UNP P32361
J	?	-	ARG	DELETION	UNP P32361
J	?	-	HIS	DELETION	UNP P32361
J	?	-	THR	DELETION	UNP P32361
J	?	-	VAL	DELETION	UNP P32361
J	?	-	VAL	DELETION	UNP P32361
J	?	-	SER	DELETION	UNP P32361
J	?	-	SER	DELETION	UNP P32361
J	?	-	ASP	DELETION	UNP P32361
J	?	-	SER	DELETION	UNP P32361
J	?	-	PHE	DELETION	UNP P32361
J	?	-	TYR	DELETION	UNP P32361
J	?	-	ASP	DELETION	UNP P32361
J	?	-	PRO	DELETION	UNP P32361
J	?	-	PHE	DELETION	UNP P32361
K	640	PRO	-	EXPRESSION TAG	UNP P32361
K	?	-	ASN	DELETION	UNP P32361
K	?	-	ASN	DELETION	UNP P32361
K	?	-	LEU	DELETION	UNP P32361
K	?	-	GLN	DELETION	UNP P32361

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Chain	Residue	Modelled	Actual	Comment	Reference
K	?	-	CYS	DELETION	UNP P32361
K	?	-	GLN	DELETION	UNP P32361
K	?	-	VAL	DELETION	UNP P32361
K	?	-	GLU	DELETION	UNP P32361
K	?	-	THR	DELETION	UNP P32361
K	?	-	GLU	DELETION	UNP P32361
K	?	-	HIS	DELETION	UNP P32361
K	?	-	SER	DELETION	UNP P32361
K	?	-	SER	DELETION	UNP P32361
K	?	-	SER	DELETION	UNP P32361
K	?	-	ARG	DELETION	UNP P32361
K	?	-	HIS	DELETION	UNP P32361
K	?	-	THR	DELETION	UNP P32361
K	?	-	VAL	DELETION	UNP P32361
K	?	-	VAL	DELETION	UNP P32361
K	?	-	SER	DELETION	UNP P32361
K	?	-	SER	DELETION	UNP P32361
K	?	-	ASP	DELETION	UNP P32361
K	?	-	SER	DELETION	UNP P32361
K	?	-	PHE	DELETION	UNP P32361
K	?	-	TYR	DELETION	UNP P32361
K	?	-	ASP	DELETION	UNP P32361
K	?	-	PRO	DELETION	UNP P32361
K	?	-	PHE	DELETION	UNP P32361
L	640	PRO	-	EXPRESSION TAG	UNP P32361
L	?	-	ASN	DELETION	UNP P32361
L	?	-	ASN	DELETION	UNP P32361
L	?	-	LEU	DELETION	UNP P32361
L	?	-	GLN	DELETION	UNP P32361
L	?	-	CYS	DELETION	UNP P32361
L	?	-	GLN	DELETION	UNP P32361
L	?	-	VAL	DELETION	UNP P32361
L	?	-	GLU	DELETION	UNP P32361
L	?	-	THR	DELETION	UNP P32361
L	?	-	GLU	DELETION	UNP P32361
L	?	-	HIS	DELETION	UNP P32361
L	?	-	SER	DELETION	UNP P32361
L	?	-	SER	DELETION	UNP P32361
L	?	-	SER	DELETION	UNP P32361
L	?	-	ARG	DELETION	UNP P32361
L	?	-	HIS	DELETION	UNP P32361
L	?	-	THR	DELETION	UNP P32361

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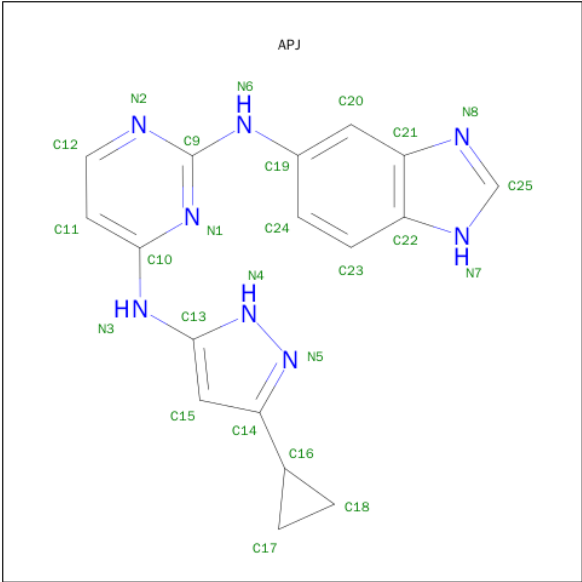
Chain	Residue	Modelled	Actual	Comment	Reference
L	?	-	VAL	DELETION	UNP P32361
L	?	-	VAL	DELETION	UNP P32361
L	?	-	SER	DELETION	UNP P32361
L	?	-	SER	DELETION	UNP P32361
L	?	-	ASP	DELETION	UNP P32361
L	?	-	SER	DELETION	UNP P32361
L	?	-	PHE	DELETION	UNP P32361
L	?	-	TYR	DELETION	UNP P32361
L	?	-	ASP	DELETION	UNP P32361
L	?	-	PRO	DELETION	UNP P32361
L	?	-	PHE	DELETION	UNP P32361
M	640	PRO	-	EXPRESSION TAG	UNP P32361
M	?	-	ASN	DELETION	UNP P32361
M	?	-	ASN	DELETION	UNP P32361
M	?	-	LEU	DELETION	UNP P32361
M	?	-	GLN	DELETION	UNP P32361
M	?	-	CYS	DELETION	UNP P32361
M	?	-	GLN	DELETION	UNP P32361
M	?	-	VAL	DELETION	UNP P32361
M	?	-	GLU	DELETION	UNP P32361
M	?	-	THR	DELETION	UNP P32361
M	?	-	GLU	DELETION	UNP P32361
M	?	-	HIS	DELETION	UNP P32361
M	?	-	SER	DELETION	UNP P32361
M	?	-	SER	DELETION	UNP P32361
M	?	-	SER	DELETION	UNP P32361
M	?	-	ARG	DELETION	UNP P32361
M	?	-	HIS	DELETION	UNP P32361
M	?	-	THR	DELETION	UNP P32361
M	?	-	VAL	DELETION	UNP P32361
M	?	-	VAL	DELETION	UNP P32361
M	?	-	SER	DELETION	UNP P32361
M	?	-	SER	DELETION	UNP P32361
M	?	-	ASP	DELETION	UNP P32361
M	?	-	SER	DELETION	UNP P32361
M	?	-	PHE	DELETION	UNP P32361
M	?	-	TYR	DELETION	UNP P32361
M	?	-	ASP	DELETION	UNP P32361
M	?	-	PRO	DELETION	UNP P32361
M	?	-	PHE	DELETION	UNP P32361
N	640	PRO	-	EXPRESSION TAG	UNP P32361
N	?	-	ASN	DELETION	UNP P32361

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Chain	Residue	Modelled	Actual	Comment	Reference
N	?	-	ASN	DELETION	UNP P32361
N	?	-	LEU	DELETION	UNP P32361
N	?	-	GLN	DELETION	UNP P32361
N	?	-	CYS	DELETION	UNP P32361
N	?	-	GLN	DELETION	UNP P32361
N	?	-	VAL	DELETION	UNP P32361
N	?	-	GLU	DELETION	UNP P32361
N	?	-	THR	DELETION	UNP P32361
N	?	-	GLU	DELETION	UNP P32361
N	?	-	HIS	DELETION	UNP P32361
N	?	-	SER	DELETION	UNP P32361
N	?	-	SER	DELETION	UNP P32361
N	?	-	SER	DELETION	UNP P32361
N	?	-	ARG	DELETION	UNP P32361
N	?	-	HIS	DELETION	UNP P32361
N	?	-	THR	DELETION	UNP P32361
N	?	-	VAL	DELETION	UNP P32361
N	?	-	VAL	DELETION	UNP P32361
N	?	-	SER	DELETION	UNP P32361
N	?	-	SER	DELETION	UNP P32361
N	?	-	ASP	DELETION	UNP P32361
N	?	-	SER	DELETION	UNP P32361
N	?	-	PHE	DELETION	UNP P32361
N	?	-	TYR	DELETION	UNP P32361
N	?	-	ASP	DELETION	UNP P32361
N	?	-	PRO	DELETION	UNP P32361
N	?	-	PHE	DELETION	UNP P32361

- Molecule 2 is N 2 -1H-BENZIMIDAZOL-5-YL-N 4 -(3-CYCLOPROPYL-1H-PYRAZOL-5-YL)PYRIMIDINE-2,4-DIAMINE (three-letter code: APJ) (formula: C₁₇H₁₆N₈).

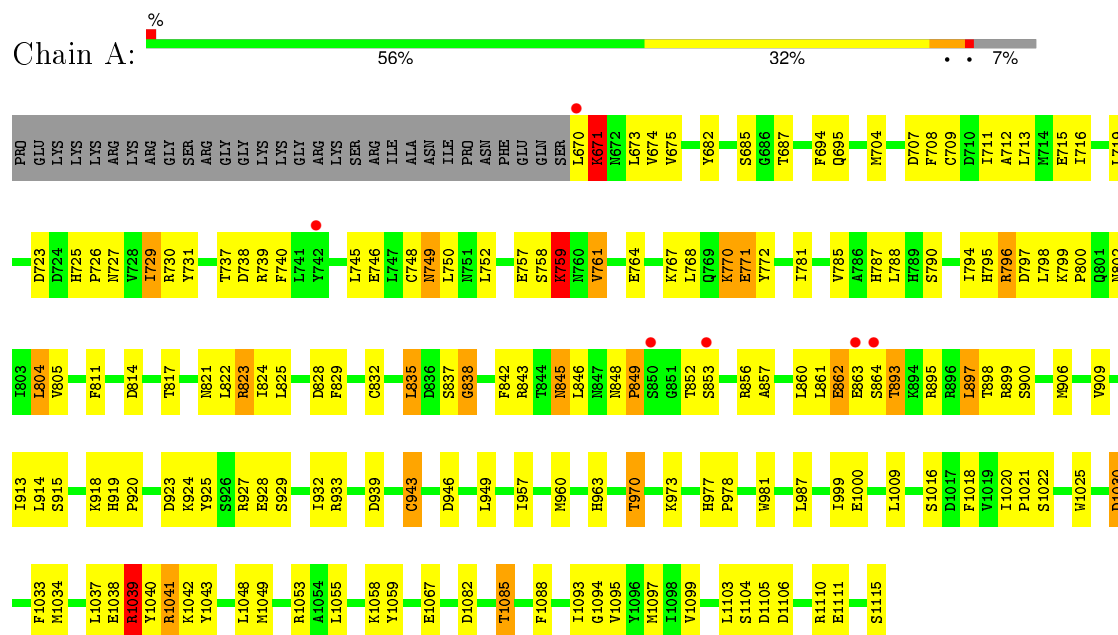


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	N	0	0
			25	17	8		
2	B	1	Total	C	N	0	0
			25	17	8		
2	C	1	Total	C	N	0	0
			25	17	8		
2	D	1	Total	C	N	0	0
			25	17	8		
2	E	1	Total	C	N	0	0
			25	17	8		
2	F	1	Total	C	N	0	0
			25	17	8		
2	G	1	Total	C	N	0	0
			25	17	8		
2	H	1	Total	C	N	0	0
			25	17	8		
2	I	1	Total	C	N	0	0
			25	17	8		
2	J	1	Total	C	N	0	0
			25	17	8		
2	K	1	Total	C	N	0	0
			25	17	8		
2	L	1	Total	C	N	0	0
			25	17	8		
2	M	1	Total	C	N	0	0
			25	17	8		
2	N	1	Total	C	N	0	0
			25	17	8		

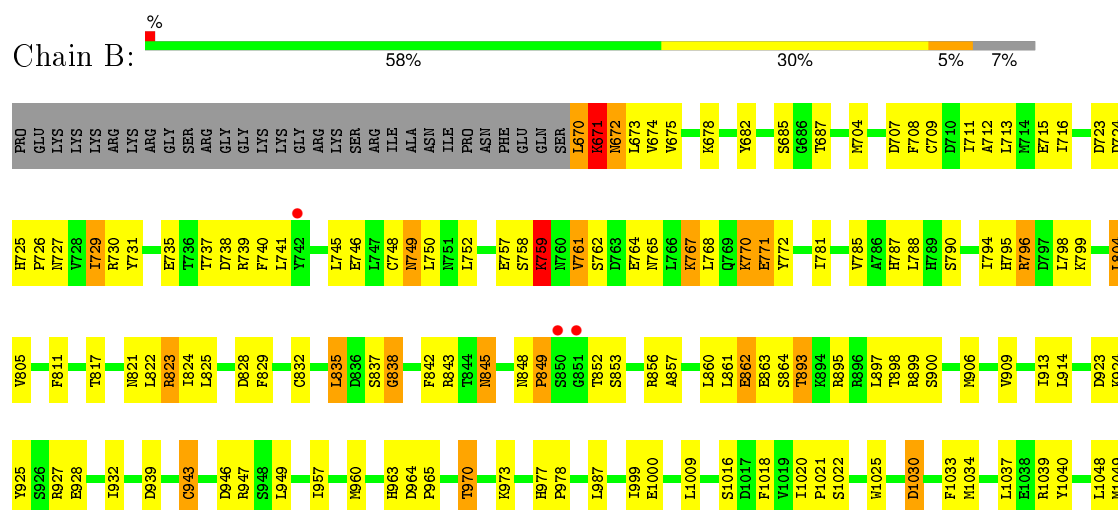
3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

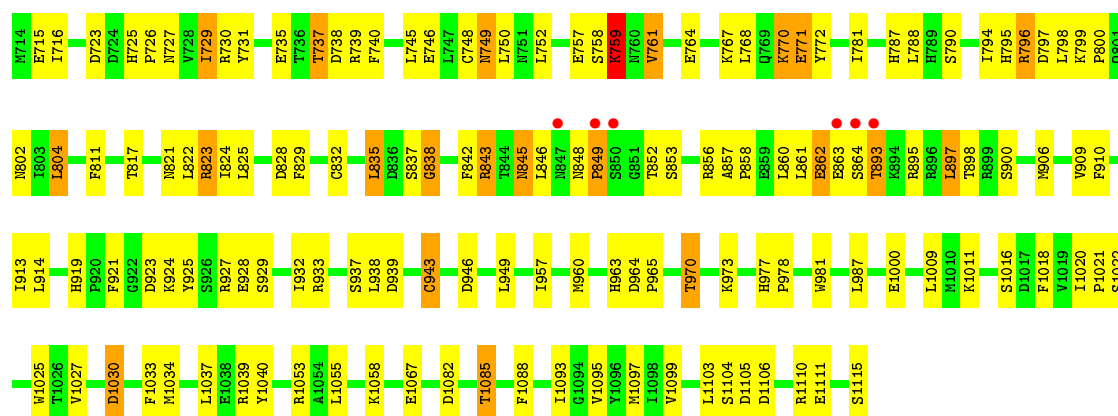
- Molecule 1: Serine/threonine-protein kinase/endoribonuclease IRE1



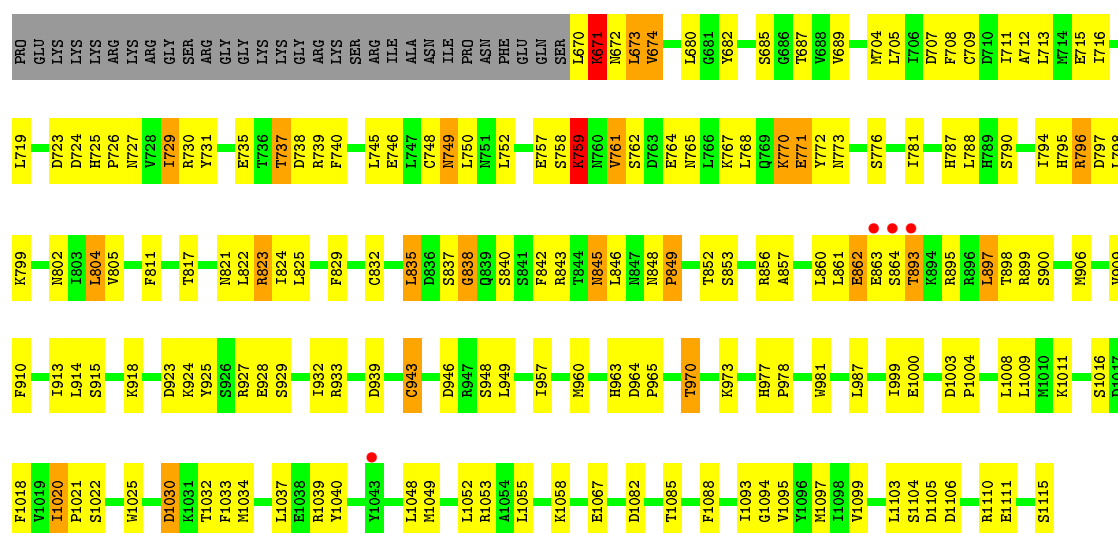
- Molecule 1: Serine/threonine-protein kinase/endoribonuclease IRE1



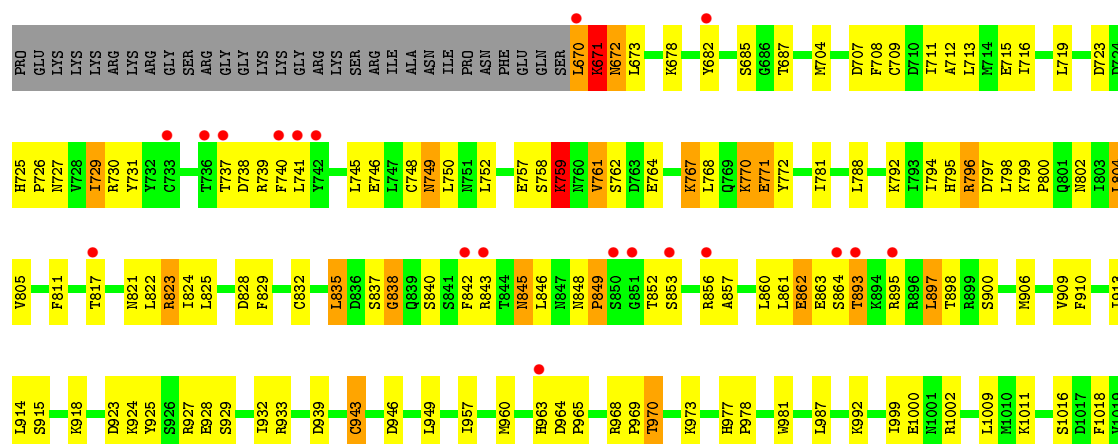


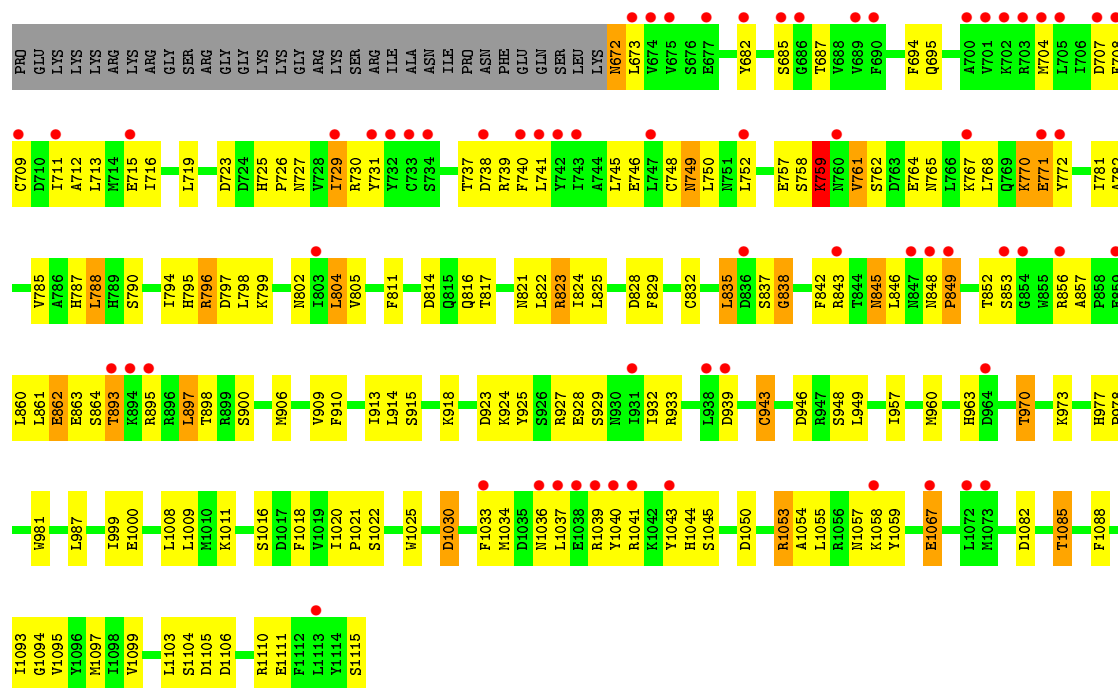


• Molecule 1: Serine/threonine-protein kinase/endoribonuclease IRE1

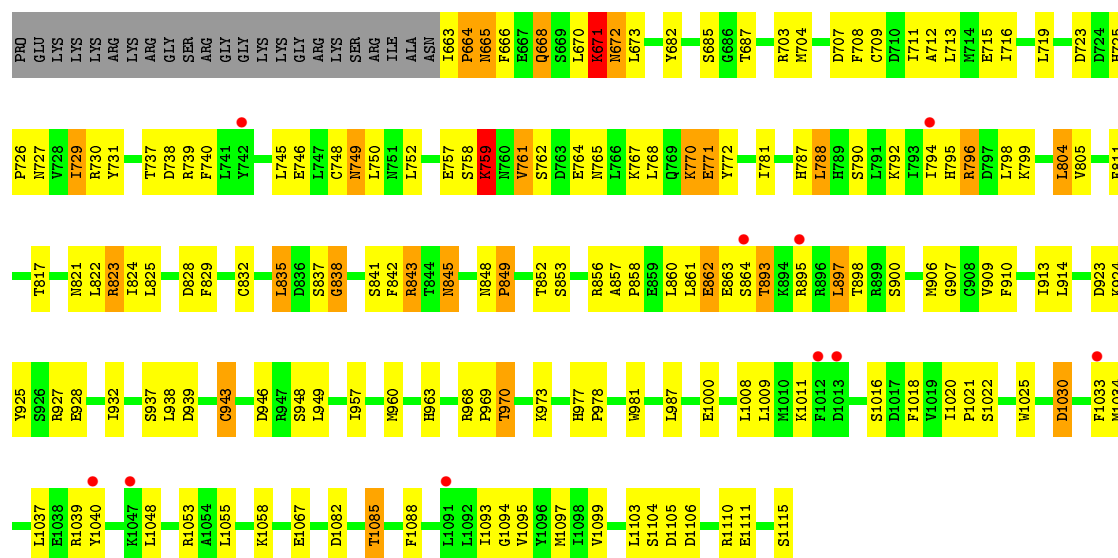


• Molecule 1: Serine/threonine-protein kinase/endoribonuclease IRE1

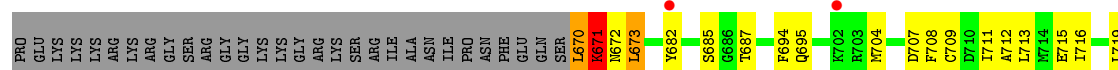


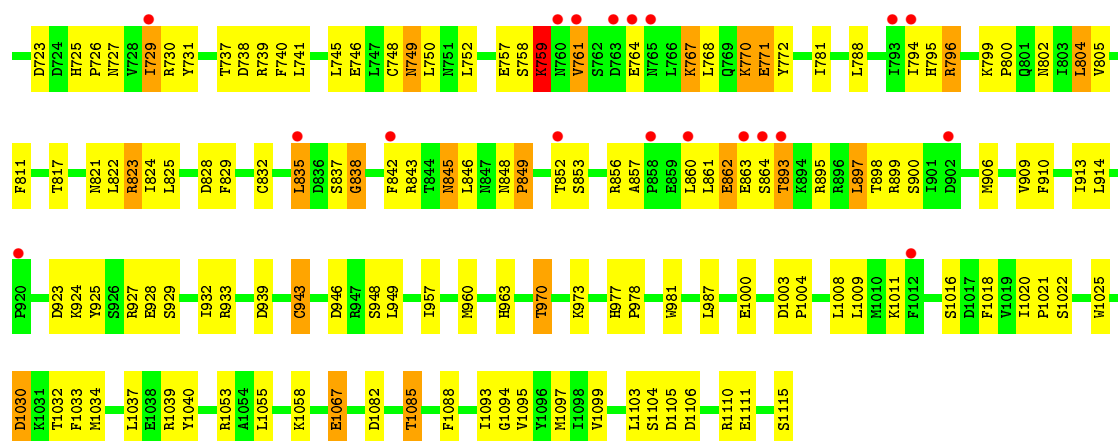


• Molecule 1: Serine/threonine-protein kinase/endoribonuclease IRE1

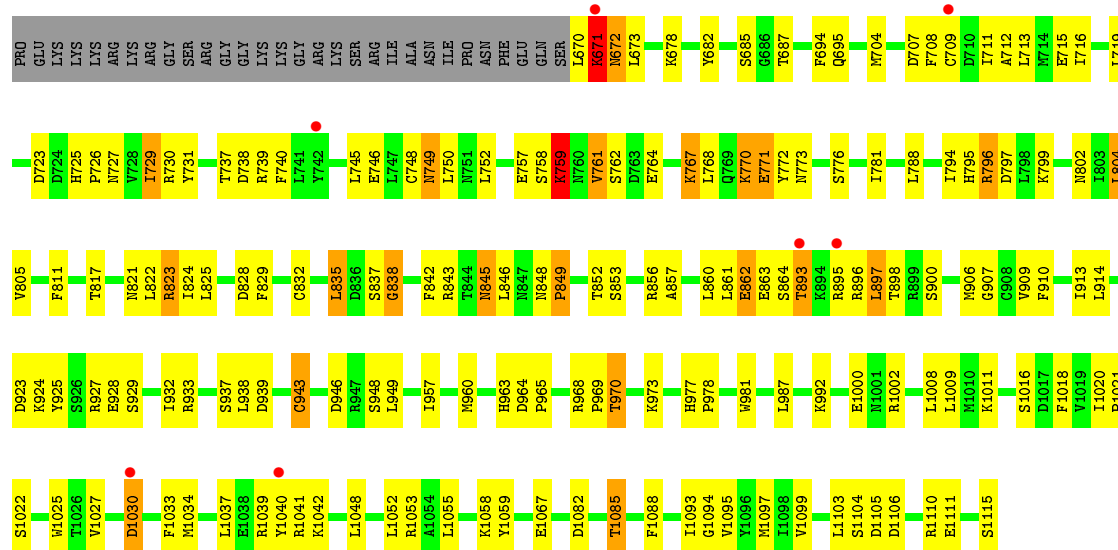


• Molecule 1: Serine/threonine-protein kinase/endoribonuclease IRE1

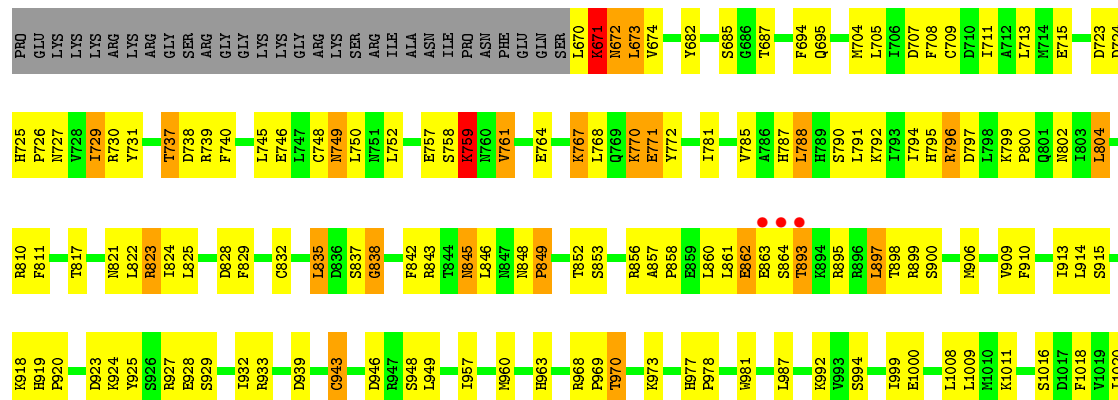




• Molecule 1: Serine/threonine-protein kinase/endoribonuclease IRE1



• Molecule 1: Serine/threonine-protein kinase/endoribonuclease IRE1



P1021	S1022	W1025	D1030	F1033	M1034	L1037	E1038	R1039	Y1040	L1052	R1053	A1054	L1055	K1058	Y1059	E1067	E1071	D1082	T1085	F1088	I1093	G1094	V1095	Y1096	M1097	I1098	V1099	L1103	S1104	D1105	D1106	R1110	E1111	S1115
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	156.82Å 163.47Å 292.83Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.98 – 3.20 48.95 – 3.11	Depositor EDS
% Data completeness (in resolution range)	100.0 (19.98-3.20) 99.0 (48.95-3.11)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.92 (at 3.12Å)	Xtriage
Refinement program	PHENIX	Depositor
R, R_{free}	0.235 , 0.283 0.235 , 0.282	Depositor DCC
R_{free} test set	6727 reflections (5.74%)	DCC
Wilson B-factor (Å ²)	82.4	Xtriage
Anisotropy	0.094	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.26 , 82.0	EDS
Estimated twinning fraction	0.075 for k,h,-l	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.40$, $\langle L^2 \rangle = 0.23$	Xtriage
Outliers	0 of 134393 reflections	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	48018	wwPDB-VP
Average B, all atoms (Å ²)	147.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.58% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.375 respectively for untwinned datasets, and 0.333, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: TPO, APJ, SEP

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.35	0/3437	0.51	1/4629 (0.0%)
1	B	0.35	0/3437	0.49	0/4629
1	C	0.37	0/3437	0.51	0/4629
1	D	0.37	0/3497	0.51	0/4711
1	E	0.33	0/3437	0.48	0/4629
1	F	0.34	0/3437	0.49	0/4629
1	G	0.29	0/3437	0.47	0/4629
1	H	0.28	0/3437	0.47	0/4629
1	I	0.27	0/3420	0.45	0/4607
1	J	0.27	0/3420	0.45	0/4607
1	K	0.28	0/3497	0.47	0/4711
1	L	0.28	0/3437	0.47	0/4629
1	M	0.32	0/3437	0.48	0/4629
1	N	0.34	0/3437	0.50	0/4629
All	All	0.32	0/48204	0.48	1/64926 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	B	0	1
1	C	0	1
1	D	0	2
1	E	0	1
1	F	0	1
1	G	0	2
1	H	0	1
1	K	0	2

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Mol	Chain	#Chirality outliers	#Planarity outliers
1	L	0	2
1	M	0	2
1	N	0	1
All	All	0	17

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1039	ARG	N-CA-C	-5.47	96.22	111.00

There are no chirality outliers.

5 of 17 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	671	LYS	Peptide
1	B	671	LYS	Peptide
1	C	671	LYS	Peptide
1	D	670	LEU	Peptide
1	D	671	LYS	Peptide

5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3399	0	3409	136	1
1	B	3399	0	3409	132	0
1	C	3399	0	3409	151	1
1	D	3457	0	3461	158	0
1	E	3399	0	3409	135	0
1	F	3399	0	3409	141	0
1	G	3399	0	3409	145	0
1	H	3399	0	3409	130	0
1	I	3382	0	3385	136	2
1	J	3382	0	3385	148	2
1	K	3457	0	3461	141	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	L	3399	0	3409	123	0
1	M	3399	0	3409	147	0
1	N	3399	0	3409	138	0
2	A	25	0	16	7	0
2	B	25	0	16	8	0
2	C	25	0	16	7	0
2	D	25	0	16	8	0
2	E	25	0	16	7	0
2	F	25	0	16	7	0
2	G	25	0	16	7	0
2	H	25	0	16	7	0
2	I	25	0	16	7	0
2	J	25	0	16	7	0
2	K	25	0	16	8	0
2	L	25	0	16	7	0
2	M	25	0	16	7	0
2	N	25	0	16	7	0
All	All	48018	0	48006	1914	3

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 20.

The worst 5 of 1914 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:668:GLN:HG3	1:D:739:ARG:HE	0.93	1.07
1:K:668:GLN:HG3	1:K:739:ARG:HE	1.19	1.02
1:F:848:ASN:HB3	1:F:849:PRO:HA	1.42	1.02
1:I:848:ASN:HB3	1:I:849:PRO:HA	1.42	1.01
1:A:848:ASN:HB3	1:A:849:PRO:HA	1.43	1.01

All (3) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:848:ASN:OD1	1:J:1045:SER:OG[4_457]	1.97	0.23
1:I:848:ASN:CG	1:J:1045:SER:OG[4_457]	2.05	0.15
1:A:1021:PRO:O	1:C:739:ARG:NH1[4_456]	2.10	0.10

5.3 Torsion angles

5.3.1 Protein backbone

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	413/448 (92%)	351 (85%)	50 (12%)	12 (3%)	6	36
1	B	413/448 (92%)	352 (85%)	52 (13%)	9 (2%)	8	45
1	C	413/448 (92%)	348 (84%)	56 (14%)	9 (2%)	8	45
1	D	420/448 (94%)	353 (84%)	57 (14%)	10 (2%)	7	43
1	E	413/448 (92%)	354 (86%)	50 (12%)	9 (2%)	8	45
1	F	413/448 (92%)	352 (85%)	52 (13%)	9 (2%)	8	45
1	G	413/448 (92%)	351 (85%)	53 (13%)	9 (2%)	8	45
1	H	413/448 (92%)	352 (85%)	52 (13%)	9 (2%)	8	45
1	I	411/448 (92%)	353 (86%)	49 (12%)	9 (2%)	8	45
1	J	411/448 (92%)	350 (85%)	52 (13%)	9 (2%)	8	45
1	K	420/448 (94%)	349 (83%)	61 (14%)	10 (2%)	7	43
1	L	413/448 (92%)	352 (85%)	52 (13%)	9 (2%)	8	45
1	M	413/448 (92%)	353 (86%)	51 (12%)	9 (2%)	8	45
1	N	413/448 (92%)	353 (86%)	51 (12%)	9 (2%)	8	45
All	All	5792/6272 (92%)	4923 (85%)	738 (13%)	131 (2%)	8	44

5 of 131 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	759	LYS
1	A	770	LYS
1	A	771	GLU
1	A	862	GLU
1	A	1039	ARG

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	380/405 (94%)	351 (92%)	29 (8%)	16	55
1	B	380/405 (94%)	352 (93%)	28 (7%)	17	56
1	C	380/405 (94%)	350 (92%)	30 (8%)	15	53
1	D	387/405 (96%)	353 (91%)	34 (9%)	12	45
1	E	380/405 (94%)	349 (92%)	31 (8%)	14	50
1	F	380/405 (94%)	349 (92%)	31 (8%)	14	50
1	G	380/405 (94%)	350 (92%)	30 (8%)	15	53
1	H	380/405 (94%)	350 (92%)	30 (8%)	15	53
1	I	378/405 (93%)	351 (93%)	27 (7%)	18	57
1	J	378/405 (93%)	351 (93%)	27 (7%)	18	57
1	K	387/405 (96%)	356 (92%)	31 (8%)	15	52
1	L	380/405 (94%)	350 (92%)	30 (8%)	15	53
1	M	380/405 (94%)	352 (93%)	28 (7%)	17	56
1	N	380/405 (94%)	347 (91%)	33 (9%)	13	45
All	All	5330/5670 (94%)	4911 (92%)	419 (8%)	15	53

5 of 419 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	G	749	ASN
1	H	943	CYS
1	N	671	LYS
1	G	796	ARG
1	G	1085	THR

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 150 such sidechains are listed below:

Mol	Chain	Res	Type
1	G	725	HIS

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Mol	Chain	Res	Type
1	H	845	ASN
1	M	1090	ASN
1	G	753	GLN
1	H	725	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

42 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the chemical component dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# $ Z > 2$	Counts	RMSZ	# $ Z > 2$
1	SEP	A	840	1	8,9,10	1.53	1 (12%)	8,12,14	1.56	1 (12%)
1	SEP	A	841	1	8,9,10	1.48	1 (12%)	8,12,14	1.01	0
1	TPO	A	844	1	8,10,11	2.66	4 (50%)	7,14,16	2.16	3 (42%)
1	SEP	B	840	1	8,9,10	1.54	1 (12%)	8,12,14	1.54	1 (12%)
1	SEP	B	841	1	8,9,10	1.47	1 (12%)	8,12,14	0.88	0
1	TPO	B	844	1	8,10,11	2.65	4 (50%)	7,14,16	2.10	3 (42%)
1	SEP	C	840	1	8,9,10	1.54	1 (12%)	8,12,14	1.56	1 (12%)
1	SEP	C	841	1	8,9,10	1.50	1 (12%)	8,12,14	0.97	0
1	TPO	C	844	1	8,10,11	2.64	4 (50%)	7,14,16	2.17	3 (42%)
1	SEP	D	840	1	8,9,10	1.57	1 (12%)	8,12,14	1.66	1 (12%)
1	SEP	D	841	1	8,9,10	1.46	1 (12%)	8,12,14	0.90	0
1	TPO	D	844	1	8,10,11	2.66	4 (50%)	7,14,16	2.18	3 (42%)
1	SEP	E	840	1	8,9,10	1.53	1 (12%)	8,12,14	1.56	1 (12%)
1	SEP	E	841	1	8,9,10	1.48	1 (12%)	8,12,14	1.07	1 (12%)
1	TPO	E	844	1	8,10,11	2.66	4 (50%)	7,14,16	2.17	3 (42%)
1	SEP	F	840	1	8,9,10	1.52	1 (12%)	8,12,14	1.49	1 (12%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
1	SEP	F	841	1	8,9,10	1.58	1 (12%)	8,12,14	0.89	0
1	TPO	F	844	1	8,10,11	2.66	4 (50%)	7,14,16	2.14	3 (42%)
1	SEP	G	840	1	8,9,10	1.55	1 (12%)	8,12,14	1.53	1 (12%)
1	SEP	G	841	1	8,9,10	1.49	1 (12%)	8,12,14	0.98	0
1	TPO	G	844	1	8,10,11	2.66	4 (50%)	7,14,16	2.11	3 (42%)
1	SEP	H	840	1	8,9,10	1.56	1 (12%)	8,12,14	1.44	1 (12%)
1	SEP	H	841	1	8,9,10	1.50	1 (12%)	8,12,14	0.98	0
1	TPO	H	844	1	8,10,11	2.65	4 (50%)	7,14,16	2.14	3 (42%)
1	SEP	I	840	1	8,9,10	1.54	1 (12%)	8,12,14	1.52	1 (12%)
1	SEP	I	841	1	8,9,10	1.51	1 (12%)	8,12,14	0.96	0
1	TPO	I	844	1	8,10,11	2.66	4 (50%)	7,14,16	2.16	3 (42%)
1	SEP	J	840	1	8,9,10	1.54	1 (12%)	8,12,14	1.56	1 (12%)
1	SEP	J	841	1	8,9,10	1.49	1 (12%)	8,12,14	0.96	0
1	TPO	J	844	1	8,10,11	2.65	4 (50%)	7,14,16	2.14	3 (42%)
1	SEP	K	840	1	8,9,10	1.55	1 (12%)	8,12,14	1.60	1 (12%)
1	SEP	K	841	1	8,9,10	1.49	1 (12%)	8,12,14	0.83	0
1	TPO	K	844	1	8,10,11	2.67	4 (50%)	7,14,16	2.16	3 (42%)
1	SEP	L	840	1	8,9,10	1.54	1 (12%)	8,12,14	1.51	1 (12%)
1	SEP	L	841	1	8,9,10	1.51	1 (12%)	8,12,14	0.93	0
1	TPO	L	844	1	8,10,11	2.65	4 (50%)	7,14,16	2.17	3 (42%)
1	SEP	M	840	1	8,9,10	1.53	1 (12%)	8,12,14	1.48	1 (12%)
1	SEP	M	841	1	8,9,10	1.46	1 (12%)	8,12,14	0.92	0
1	TPO	M	844	1	8,10,11	2.66	4 (50%)	7,14,16	2.17	3 (42%)
1	SEP	N	840	1	8,9,10	1.56	1 (12%)	8,12,14	1.53	1 (12%)
1	SEP	N	841	1	8,9,10	1.52	1 (12%)	8,12,14	0.96	0
1	TPO	N	844	1	8,10,11	2.65	4 (50%)	7,14,16	2.18	3 (42%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the chemical component dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	SEP	A	840	1	-	0/6/8/10	0/0/0/0
1	SEP	A	841	1	-	0/6/8/10	0/0/0/0
1	TPO	A	844	1	-	0/8/11/13	0/0/0/0
1	SEP	B	840	1	-	0/6/8/10	0/0/0/0

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	SEP	B	841	1	-	0/6/8/10	0/0/0/0
1	TPO	B	844	1	-	0/8/11/13	0/0/0/0
1	SEP	C	840	1	-	0/6/8/10	0/0/0/0
1	SEP	C	841	1	-	0/6/8/10	0/0/0/0
1	TPO	C	844	1	-	0/8/11/13	0/0/0/0
1	SEP	D	840	1	-	0/6/8/10	0/0/0/0
1	SEP	D	841	1	-	0/6/8/10	0/0/0/0
1	TPO	D	844	1	-	0/8/11/13	0/0/0/0
1	SEP	E	840	1	-	0/6/8/10	0/0/0/0
1	SEP	E	841	1	-	0/6/8/10	0/0/0/0
1	TPO	E	844	1	-	0/8/11/13	0/0/0/0
1	SEP	F	840	1	-	0/6/8/10	0/0/0/0
1	SEP	F	841	1	-	0/6/8/10	0/0/0/0
1	TPO	F	844	1	-	0/8/11/13	0/0/0/0
1	SEP	G	840	1	-	0/6/8/10	0/0/0/0
1	SEP	G	841	1	-	0/6/8/10	0/0/0/0
1	TPO	G	844	1	-	0/8/11/13	0/0/0/0
1	SEP	H	840	1	-	0/6/8/10	0/0/0/0
1	SEP	H	841	1	-	0/6/8/10	0/0/0/0
1	TPO	H	844	1	-	0/8/11/13	0/0/0/0
1	SEP	I	840	1	-	0/6/8/10	0/0/0/0
1	SEP	I	841	1	-	0/6/8/10	0/0/0/0
1	TPO	I	844	1	-	0/8/11/13	0/0/0/0
1	SEP	J	840	1	-	0/6/8/10	0/0/0/0
1	SEP	J	841	1	-	0/6/8/10	0/0/0/0
1	TPO	J	844	1	-	0/8/11/13	0/0/0/0
1	SEP	K	840	1	-	0/6/8/10	0/0/0/0
1	SEP	K	841	1	-	0/6/8/10	0/0/0/0
1	TPO	K	844	1	-	0/8/11/13	0/0/0/0
1	SEP	L	840	1	-	0/6/8/10	0/0/0/0
1	SEP	L	841	1	-	0/6/8/10	0/0/0/0
1	TPO	L	844	1	-	0/8/11/13	0/0/0/0
1	SEP	M	840	1	-	0/6/8/10	0/0/0/0
1	SEP	M	841	1	-	0/6/8/10	0/0/0/0
1	TPO	M	844	1	-	0/8/11/13	0/0/0/0
1	SEP	N	840	1	-	0/6/8/10	0/0/0/0
1	SEP	N	841	1	-	0/6/8/10	0/0/0/0
1	TPO	N	844	1	-	0/8/11/13	0/0/0/0

The worst 5 of 84 bond length outliers are listed below:

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	844	TPO	P-O3P	-2.30	1.46	1.54
1	C	844	TPO	P-O3P	-2.30	1.46	1.54
1	N	844	TPO	P-O3P	-2.29	1.46	1.54
1	B	844	TPO	P-O3P	-2.28	1.46	1.54
1	I	844	TPO	P-O3P	-2.28	1.46	1.54

The worst 5 of 57 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	844	TPO	O-C-CA	-4.35	113.95	125.44
1	N	844	TPO	O-C-CA	-4.33	113.99	125.44
1	E	844	TPO	O-C-CA	-4.33	114.00	125.44
1	M	844	TPO	O-C-CA	-4.33	114.00	125.44
1	J	844	TPO	O-C-CA	-4.32	114.04	125.44

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

4 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	F	840	SEP	3	0
1	G	840	SEP	1	0
1	H	840	SEP	3	0
1	K	841	SEP	2	0

5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

14 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the chemical component dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length

(or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	APJ	A	1999	-	26,29,29	1.90	5 (19%)	29,41,41	2.67	12 (41%)
2	APJ	B	1999	-	26,29,29	1.82	6 (23%)	29,41,41	2.63	11 (37%)
2	APJ	C	1999	-	26,29,29	1.80	5 (19%)	29,41,41	2.73	12 (41%)
2	APJ	D	1999	-	26,29,29	1.80	6 (23%)	29,41,41	2.68	12 (41%)
2	APJ	E	1999	-	26,29,29	1.77	5 (19%)	29,41,41	2.63	11 (37%)
2	APJ	F	1999	-	26,29,29	1.78	6 (23%)	29,41,41	2.64	13 (44%)
2	APJ	G	1999	-	26,29,29	1.86	6 (23%)	29,41,41	2.62	11 (37%)
2	APJ	H	1999	-	26,29,29	1.80	5 (19%)	29,41,41	2.63	11 (37%)
2	APJ	I	1999	-	26,29,29	1.83	6 (23%)	29,41,41	2.65	11 (37%)
2	APJ	J	1999	-	26,29,29	1.84	5 (19%)	29,41,41	2.64	11 (37%)
2	APJ	K	1999	-	26,29,29	1.82	4 (15%)	29,41,41	2.63	12 (41%)
2	APJ	L	1999	-	26,29,29	1.81	5 (19%)	29,41,41	2.66	12 (41%)
2	APJ	M	1999	-	26,29,29	1.82	6 (23%)	29,41,41	2.66	12 (41%)
2	APJ	N	1999	-	26,29,29	1.78	6 (23%)	29,41,41	2.64	12 (41%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the chemical component dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	APJ	A	1999	-	-	0/10/14/14	0/4/5/5
2	APJ	B	1999	-	-	0/10/14/14	0/4/5/5
2	APJ	C	1999	-	-	0/10/14/14	0/4/5/5
2	APJ	D	1999	-	-	0/10/14/14	0/4/5/5
2	APJ	E	1999	-	-	0/10/14/14	0/4/5/5
2	APJ	F	1999	-	-	0/10/14/14	0/4/5/5
2	APJ	G	1999	-	-	0/10/14/14	0/4/5/5
2	APJ	H	1999	-	-	0/10/14/14	0/4/5/5
2	APJ	I	1999	-	-	0/10/14/14	0/4/5/5
2	APJ	J	1999	-	-	0/10/14/14	0/4/5/5
2	APJ	K	1999	-	-	0/10/14/14	0/4/5/5
2	APJ	L	1999	-	-	0/10/14/14	0/4/5/5
2	APJ	M	1999	-	-	0/10/14/14	0/4/5/5
2	APJ	N	1999	-	-	0/10/14/14	0/4/5/5

The worst 5 of 76 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	1999	APJ	N4-N5	-5.64	1.26	1.37
2	C	1999	APJ	N4-N5	-5.56	1.26	1.37
2	G	1999	APJ	N4-N5	-5.56	1.26	1.37
2	D	1999	APJ	N4-N5	-5.48	1.26	1.37
2	H	1999	APJ	N4-N5	-5.48	1.26	1.37

The worst 5 of 163 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	J	1999	APJ	N2-C9-N1	-6.77	119.46	126.67
2	I	1999	APJ	N2-C9-N1	-6.50	119.74	126.67
2	M	1999	APJ	N2-C9-N1	-6.44	119.81	126.67
2	G	1999	APJ	N2-C9-N1	-6.42	119.82	126.67
2	L	1999	APJ	N2-C9-N1	-6.42	119.83	126.67

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

14 monomers are involved in 101 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1999	APJ	7	0
2	B	1999	APJ	8	0
2	C	1999	APJ	7	0
2	D	1999	APJ	8	0
2	E	1999	APJ	7	0
2	F	1999	APJ	7	0
2	G	1999	APJ	7	0
2	H	1999	APJ	7	0
2	I	1999	APJ	7	0
2	J	1999	APJ	7	0
2	K	1999	APJ	8	0
2	L	1999	APJ	7	0
2	M	1999	APJ	7	0
2	N	1999	APJ	7	0

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	415/448 (92%)	-0.14	6 (1%) 78 65	53, 111, 203, 287	0
1	B	415/448 (92%)	-0.15	3 (0%) 89 83	53, 108, 202, 287	0
1	C	415/448 (92%)	-0.17	5 (1%) 81 69	41, 102, 208, 268	0
1	D	422/448 (94%)	-0.25	2 (0%) 91 87	44, 99, 190, 261	0
1	E	415/448 (92%)	-0.17	8 (1%) 70 55	70, 119, 208, 308	0
1	F	415/448 (92%)	-0.17	4 (0%) 84 75	65, 107, 200, 259	0
1	G	415/448 (92%)	0.22	23 (5%) 29 16	99, 161, 256, 323	0
1	H	415/448 (92%)	0.19	17 (4%) 41 27	109, 166, 248, 312	0
1	I	413/448 (92%)	0.22	24 (5%) 26 15	123, 185, 259, 322	0
1	J	413/448 (92%)	0.72	66 (15%) 3 2	145, 210, 301, 366	0
1	K	422/448 (94%)	0.12	10 (2%) 62 47	108, 173, 258, 302	0
1	L	415/448 (92%)	0.31	21 (5%) 32 18	122, 177, 242, 319	0
1	M	415/448 (92%)	-0.08	7 (1%) 73 60	74, 123, 209, 271	0
1	N	415/448 (92%)	-0.13	4 (0%) 84 75	70, 106, 198, 296	0
All	All	5820/6272 (92%)	0.04	200 (3%) 49 34	41, 141, 246, 366	0

The worst 5 of 200 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	L	864	SER	12.6
1	L	863	GLU	8.9
1	N	893	THR	7.7
1	N	864	SER	6.0
1	F	864	SER	5.9

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(Å ²)	Q<0.9
1	SEP	C	841	10/11	0.92	0.15	-	90,114,135,145	0
1	SEP	H	840	10/11	0.74	0.21	-	179,184,191,192	0
1	TPO	M	844	11/12	0.86	0.22	-	228,257,285,285	0
1	SEP	K	841	10/11	0.85	0.15	-	148,161,173,180	0
1	SEP	H	841	10/11	0.91	0.13	-	145,157,165,172	0
1	TPO	E	844	11/12	0.79	0.23	-	238,260,293,298	0
1	SEP	I	840	10/11	0.84	0.23	-	216,220,226,226	0
1	TPO	N	844	11/12	0.76	0.22	-	235,252,274,280	0
1	SEP	F	840	10/11	0.84	0.17	-	138,142,146,152	0
1	TPO	L	844	11/12	0.70	0.44	-	306,329,351,352	0
1	SEP	N	840	10/11	0.85	0.15	-	172,174,179,183	0
1	SEP	L	840	10/11	0.51	0.32	-	244,256,269,270	0
1	TPO	A	844	11/12	0.90	0.17	-	256,286,315,317	0
1	SEP	G	840	10/11	0.84	0.22	-	187,192,200,202	0
1	SEP	E	840	10/11	0.89	0.28	-	184,188,196,198	0
1	SEP	B	841	10/11	0.90	0.17	-	111,133,156,162	0
1	TPO	J	844	11/12	0.70	0.22	-	253,261,280,285	0
1	SEP	J	841	10/11	0.92	0.14	-	175,183,188,193	0
1	TPO	B	844	11/12	0.87	0.23	-	166,194,212,216	0
1	SEP	D	840	10/11	0.91	0.22	-	134,138,146,146	0
1	TPO	F	844	11/12	0.73	0.30	-	232,250,267,271	0
1	SEP	J	840	10/11	0.79	0.25	-	210,217,231,232	0
1	SEP	A	841	10/11	0.85	0.13	-	117,131,144,148	0
1	TPO	K	844	11/12	0.82	0.36	-	261,276,304,315	0
1	SEP	A	840	10/11	0.66	0.28	-	202,208,216,216	0
1	SEP	I	841	10/11	0.92	0.12	-	171,181,192,193	0
1	TPO	C	844	11/12	0.86	0.23	-	199,232,261,263	0
1	TPO	H	844	11/12	0.76	0.24	-	260,273,298,309	0
1	SEP	M	840	10/11	0.83	0.27	-	146,150,158,160	0
1	SEP	B	840	10/11	0.87	0.22	-	147,153,162,164	0
1	TPO	D	844	11/12	0.80	0.20	-	216,242,266,272	0
1	SEP	K	840	10/11	0.80	0.27	-	184,186,190,191	0
1	TPO	G	844	11/12	0.80	0.37	-	280,298,330,346	0
1	TPO	I	844	11/12	0.69	0.47	-	258,270,291,301	0
1	SEP	F	841	10/11	0.91	0.13	-	110,119,130,131	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(\AA^2)	Q<0.9
1	SEP	G	841	10/11	0.90	0.11	-	141,156,172,175	0
1	SEP	D	841	10/11	0.95	0.12	-	82,92,114,119	0
1	SEP	E	841	10/11	0.92	0.12	-	117,136,158,163	0
1	SEP	N	841	10/11	0.93	0.11	-	120,133,149,152	0
1	SEP	L	841	10/11	0.55	0.23	-	213,235,255,263	0
1	SEP	M	841	10/11	0.94	0.10	-	103,112,132,137	0
1	SEP	C	840	10/11	0.87	0.20	-	151,156,164,164	0

6.3 Carbohydrates [i](#)

There are no carbohydrates in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(\AA^2)	Q<0.9
2	APJ	K	1999	25/25	0.88	0.40	2.13	135,135,135,135	0
2	APJ	H	1999	25/25	0.81	0.49	2.05	170,170,170,170	0
2	APJ	J	1999	25/25	0.76	0.68	2.00	197,197,197,197	0
2	APJ	C	1999	25/25	0.93	0.26	1.09	66,66,66,66	0
2	APJ	D	1999	25/25	0.92	0.24	1.09	78,78,78,78	0
2	APJ	E	1999	25/25	0.95	0.22	0.74	101,101,101,101	0
2	APJ	G	1999	25/25	0.92	0.30	0.64	145,145,145,145	0
2	APJ	M	1999	25/25	0.92	0.24	0.42	113,113,113,113	0
2	APJ	L	1999	25/25	0.84	0.34	0.34	142,142,142,142	0
2	APJ	I	1999	25/25	0.83	0.29	0.32	171,171,171,171	0
2	APJ	F	1999	25/25	0.93	0.22	0.23	93,93,93,93	0
2	APJ	A	1999	25/25	0.93	0.22	-0.04	93,93,93,93	0
2	APJ	N	1999	25/25	0.94	0.21	-0.10	87,87,87,87	0
2	APJ	B	1999	25/25	0.94	0.21	-0.26	96,96,96,96	0

6.5 Other polymers [i](#)

There are no such residues in this entry.